[0030] U.S. Pat. No. 5,841,374, issued on Nov. 24, 1998 to Joseph N. Abraham, describes a compact, pocket computer for word processing utilizing keys which combine a plurality of toggle switches or multidirectional keys in a pocket size case. Abraham does not suggest a cluster key arrangement according to the claimed invention.

[0031] U.S. Pat. No. 5,844,506, issued on Dec. 1, 1998 to Ronald P. Binstead, describes a touchpad comprising an electrically insulating membrane with a first series of spaced apart conductors on a first face of the membrane and a second series of spaced apart conductors on or proximal thereto, in which there is no electrical contact between the first and second series of conductors. Binstead does not suggest a cluster key arrangement according to the claimed invention.

[0032] U.S. Pat. No. 5,852,414, issued on Dec. 22, 1998 to Seymour H. Yu et al., describes a triangle-shaped 4-way-switching key for a keypad consisting of 10 keys alternating upwards and downwards pointing positioned for entering alphanumeric data into a computer or communication device. Yu et al. does not suggest a cluster key arrangement according to the claimed invention.

[0033] U.S. Pat. No. 5,861,823, issued on Jan. 19, 1999 to Gary J. Strauch et al., describes a data entry device having multifunction keys, which can produce more than one character depending upon how the key is depressed. Separation of the intended function of depressing the central primary key is achieved in all three embodiments through a second function key which puts the device in a primary function or a multifunction mode. Strauch et al. requires the generation of at least two characters, a primary character and at least one secondary character, upon depression of any key. This distinguishes over the present invention because in the present invention a single character is generated in a mutually exclusive manner depending upon which specific key of a cluster key is depressed. Strauch et al. does not suggest a cluster key arrangement according to the claimed invention.

[0034] Germany Patent document 3,234,417 A1, published on Mar. 22, 1984, describes a keyboard for generating an alphanumerical symbol. Germany '417 does not suggest a cluster key arrangement according to the claimed invention.

[0035] Germany Patent document 3,532,201 A1, published on Mar. 19, 1987, describes an electronic keyboard. Germany '201 does not suggest a cluster key arrangement according to the claimed invention.

[0036] Great Britain Patent document 1,035,193, published on Jul. 6, 1966, describes an electric switch which includes fixed contacts and a moving bridging contact in the form of a surface of revolution carried by a support on which it is free to turn about its axis and with which it can be moved generally in a radial, direction at right angles to the line joining the fixed contacts to engage them. Great Britain '193 does not suggest a cluster key arrangement according to the claimed invention.

[0037] Great Britain Patent document 1,313,754, published on Apr. 18, 1973, describes a joystick controlled switch apparatus comprising an operating lever rotatable about a pivot point in a support intermediate first and second portions of the lever. Great Britain '754 does not suggest a cluster key arrangement according to the claimed invention.

[0038] Japan Patent document 1-93249, published on Apr. 12, 1989, describes a character information input device. Japan '249 does not suggest a cluster key arrangement according to the claimed invention.

[0039] An article entitled "THE ABCS OF KEYPAD LOGIC", by Mike Mills, published Feb. 15, 1999 in the Washington Post, describes a keypad operating in conjunction with software to disambiguate keystrokes entered by a user to make a highly educated guess of what the user is trying to spell. The keyboard has twelve keys, nine of them labeled with numerous letters and other symbols, and those nine plus one more are labeled with one of the ten digits. Textural entry keystrokes are ambiguous. The user strikes a delimiting "select" key at the end of each word, delimiting a keystroke sequence which could match any of many words with the same number of letters. The keystroke sequence is processed with a complete dictionary, and words which match the sequence of keystrokes are presented to the user in order of decreasing frequency of use. The use selects the desired word. The letters are assigned to the keys in a non-sequential order which reduces chances of ambiguities. The present invention generates a single character in a mutually exclusive manner depending upon which specific key of a cluster key is depressed. This article does not suggest a cluster key arrangement according to the claimed invention.

[0040] An article entitled "INVENTOR ON THE VERGE OF A NERVOUS BREAKTHROUGH", by David Stipp, published Mar. 29, 1999 in Fortune Magazine, pages 106-116, describes a palm-sized keyboard with full-sized keys. This article does not suggest a cluster key arrangement according to the claimed invention.

[0041] An article entitled "SEMI-CAPTIVE KEYBOARD", published in February, 1976 in Xerox Disclosure Journal Vol. 1 Number 2, page 85, describes a keyboard for information encoding with minimal finger movement by the operator. This article does not suggest a cluster key arrangement according to the claimed invention.

[0042] An article entitled "COMPACT COMPUTER KEYBOARD", published in March, 1985 in IBM Technical Disclosure Bulletin, Vol. 27 No. 10A, pages 5640-5642, describes a small computer keyboard that retains the conventional spatial relationships among the alphabetic keys without reducing the standard surface area for finger contact on each key or the spacing between adjacent keys. This article does not suggest a cluster key arrangement according to the claimed invention.

[0043] An article entitled "SMART KEY", published in October, 1985 in IBM Technical Disclosure Bulletin Vol. 28 No. 5, pages 1859-1860, describes a special key positioned on the keyboard portion of an interactive terminal for controlling cursor positioning at the terminal display by touch control. This article does not suggest a cluster key arrangement according to the claimed invention.

[0044] An article entitled "SPACE BAR THAT ROLLS", published in August, 1989 in. IBM Technical Disclosure Bulletin Vol. 32 No. 3B, pages 700-701, describes a space bar which can rotate along its long axis in order to provide an additional function. This article does not suggest a cluster key arrangement according to the claimed invention.